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(71) Applicant (for all designated States except US): E.I. DUPONT DE NEMOURS AND COMPANY [US/US]; 1007 MARKET STREET, WILMINGTON, Delaware 19898 (US).

(72) Inventors; and

(75) Inventors/Applicants (for US only): BROWNE,

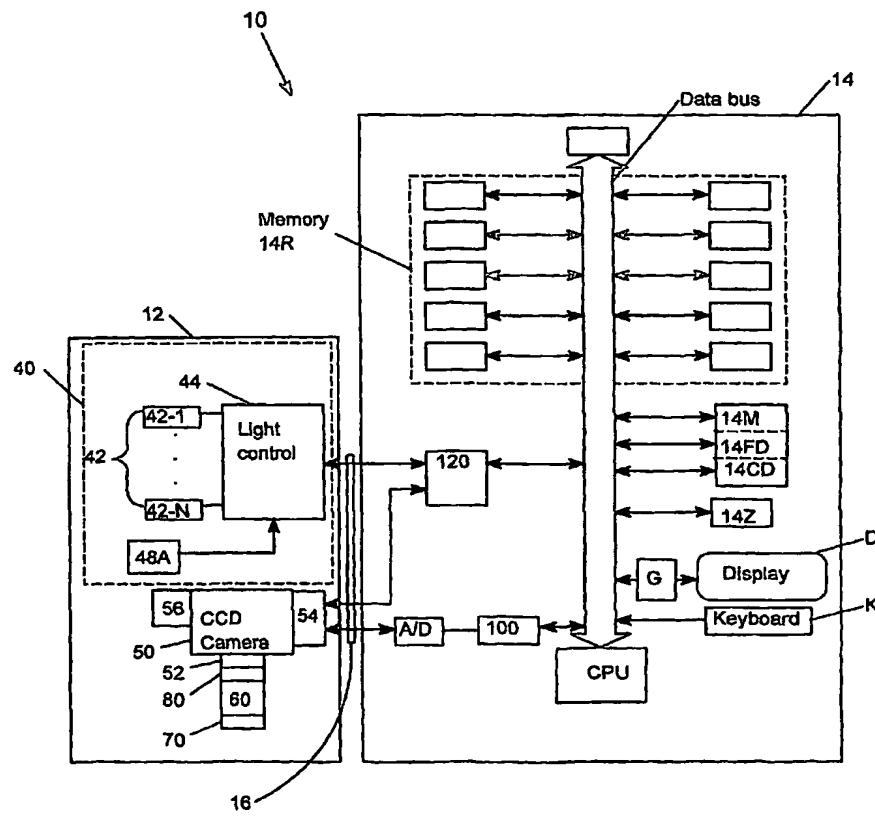
Richard, Walker [US/US]; 1406 Belvoir Circle, Wilmington, Delaware 19803 (US). CANNING, Robert, V., Jr. [US/US]; 519 Sawmill Bridge Lane, Bear, Delaware 19701 (US). EVANS, Michael, H. [US/US]; 5 Kelly Lane, Newark, Delaware 19711 (US). JOHNSON, Robert, William [US/US]; 75 Woodchuck Way, Kennett Square, Pennsylvania 19348 (US). RUBIN, Barry [US/US]; 99 Fox Valley Lane, Glen Mills, Pennsylvania 19342 (US). STILWELL, Douglas, Ray [US/US]; 7 Lilac Court, Wilmington, Delaware 19808us (US).

(74) Agent: SINNOT, Jessica, M.; E. I. DU PONT DE NEMOURS AND COMPANY, LEGAL PATENT RECORDS CENTER, 4417 Lancaster Pike, Wilmington, Delaware 19805 (US).

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[Continued on next page]

(54) Title: METHOD AND APPARATUS FOR QUANTIFYING VISUAL SHOWTHROUGH OF PRINTED IMAGES ON THE REVERSE OF PLANAR OBJECTS



(57) Abstract: An image analysis method and apparatus (10) having an imaging assembly (12) and a processor (14) to quantify visual showthrough of printed images on the reverse face of planar objects, such as paper. An illumination level is set using a white reference object. A white reference image is stored in a computer memory. An image of a planar object having a printed image on the reverse face is stored in a computer memory. A pixel by pixel ratio of the two images is calculated and a mean value of the ratios is calculated to characterize the visual showthrough. The measurements are substantially independent of both the illumination level and image shading.



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INTERNATIONAL SEARCH REPORT

International application No.

PCT/US04/10710

A. CLASSIFICATION OF SUBJECT MATTER

IPC(7) : G06K 9/00; G01N 21/00, 21/84
US CL : 382/141; 356/435, 429

According to International Patent Classification (IPC) or to both national classification and IPC

B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)
U.S. : 382/141, 108, 112, 286; 356/435, 429, 432, 433, 434, 440, 445, 234, 236

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Electronic data base consulted during the international search (name of data base and, where practicable, search terms used)

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C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category *	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
A	WO98/20326 (RUBIN et al) 14 May 1998 (14.05.1998), whole document.	1-18
A	US 6,081,612 A (GUTKOWICZ-KRUSIN et al) 27 June 2000 (27.06.2000), whole document.	1-18
A	US 20040021869 A1 (SHAKESPEARE et al) 05 February 2004 (05.02.2004), whole document.	1-18
A	US 5,793,486 A (GORDON et al) 11 August 1998 (11.08.1998), whole document.	1-18
A	US 5,082,529 A (BURK) 21 January 1992 (21.01.1992), whole document.	1-18
A	US 3,455,637 A (HOWARD) 15 July 1969 (15.07.1969), whole document.	1-18
A	US 3,827,808 A (CHO) 6 August 1974 (06.08.1974), whole document.	1-18
A	HO. T. et al Applying Digital Image Technology to Pulp and Paper, Canadian Conference on Electrical and Computer Engineering, 14-17 September 1993, Vol. 2, pages 1139-1143, whole document.	1-18

Further documents are listed in the continuation of Box C.

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Name and mailing address of the ISA/US

Mail Stop PCT, Attn: ISA/US
Commissioner for Patents
P.O. Box 1450
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Authorized officer

Wenpeng Chen

Telephone No. 571 272-7431

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Continuation of B. FIELDS SEARCHED Item 3:
EAST, IEEE Xplore, Google
search terms: seethrough, showthrough, opacity, paper, sheet, dark-current